

MAGNETIC TUNNEL JUNCTIONS WITH IMPROVED TUNNELING MAGNETO-RESISTANCE

ABSTRACT OF THE DISCLOSURE

A magnetic tunnel element that can be used, for example, as part of a read head or a magnetic memory cell, includes a first layer formed from an amorphous material, an amorphous tunnel barrier layer, and an interface layer between the first layer and the tunnel barrier layer. The interface layer is formed from a material that is crystalline when the material is in isolation from both the first layer and the tunnel barrier layer. Alternatively, the thickness of the interface layer is selected so that the interface layer is not crystalline. The first layer is formed from at least one material selected from the group consisting of amorphous ferromagnetic material, amorphous ferrimagnetic materials, and amorphous non-magnetic materials. The interface layer is formed from a material selected from the group consisting of a ferromagnetic material and a ferrimagnetic material.